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UNIVERSITY OF ALBERTA

FOCUSES IN READING OF L1 AND L2 STUDENTS

BY

LIANG XINWEI

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Master of Education

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA

FALL, 1992

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Focuses in Reading of L1 and L2 Students submitted by Liang Xinwei in partial fulfilment of the requirement of the degree of Master of Education in the Department of Elementary Education.

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ABSTRACT

The purpose of this study was to compare reading processes employed by adult, advanced ESL students and graduate students who were born in Canada. Through analysis of results on word recall and reading comprehension tasks as well as information gathered from two questions, similarities and differences between the focus of reading of these two groups of students were discussed.

In this study subjects were selected from two groups. One group consisted of 30 Chinese students at the University of Alberta who were born in P.R. China. The other group consisted of 30 Canadian-born students who were native speakers of English. Both groups were in the Master's or Ph.D programs at the University of Alberta. Both groups had the same number of male and female students.

Both groups were asked to read the same two passages, which involved popular science topics, and to answer five reading comprehension questions about each passage. These questions were included to ensure that subjects viewed the reading task as one involving meaning, and to obtain a measure of reading comprehension. On another sheet ten groups of words were presented for each passage. Each group included a word from the passage along with three words which were either

synonyms or other forms of the same root word. These word groups were intended to test the different reading focuses of the two groups of students.

Finally, a question sheet was presented after the subjects had finished their comprehension and word recall tasks. Two questions about concepts of reading were included to gather further information on differences between L1 and L2 readers in their focus of reading.

The results of the study showed that L2 readers focused more on words than did L1 readers, but they did as well as L1 readers on the reading comprehension task. These results support the hypothesis that L2 readers are more word-oriented than L1 readers, but show that L2 readers are able to understand what they read as well as L1 readers when they are reading about familiar topics and have unlimited time. This study also demonstrated the influence of traditional methods on ESL reading.

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Chapter 1

Introduction

More and more Chinese students from the People's Republic of China (P.R. China) have arrived and are arriving in North America since the Chinese government opened its door to Western countries in 1978. These students and scholars are mostly working and studying in academic fields. In Canada it was reported that there were more than 9,000 students (last year's report from the Embassy of P.R.China). In the University of Alberta alone there were more than 600 students and visiting scholars (information from the International Students' Center, University of Alberta) from P.R. China, who were studying and working in different departments, mainly in faculties of science and engineering. All of them are in Master's or Ph.D programs.

Before coming to Canada these Chinese students underwent formal evaluations of their command of English. All of these students, who are in Master's programs or Ph.D programs in universities in North America, have passed a test in English such as the Test of English as a Foreign Language (TOEFL). Proficiency in English is an important requirement for

admission to graduate programs in universities in North America, but in actual fact the proficiency of students in English varies considerably from person to person.

Reading proficiency in English is considered by many to be very important for students to survive in North American universities. Eskey (1970) states that "at advanced proficiency levels in a second language the ability to read the written language at a reasonable rate and with good comprehension has been recognized to be as important as oral skill, if not more important"(p.315). Carrell & Eisterbold (1988) believe that without solid reading proficiency, second language readers can't perform at the levels they must in order to succeed and compete with their native English speaking counterparts.

Some experts on second language reading (Carrell & Eisterbold, 1988) hypothesize that less proficient language students are more word-oriented in reading English; vocabulary acquisition tends to be emphasized and readers are encouraged to engage in specific word-by-word processing almost exclusively in a bottom-up processing model. Little evidence is available to support this hypothesis.

The Purpose of this Study

The purpose of this study was to compare reading

processes employed by 30 adult advanced ESL Chinese students (L2) and 30 Canadian-born students whose first language is English (L1). The study examined similarities and differences in the reading focus between these two groups by measuring reading comprehension and memory for specific words read. Two questions were also asked to provide further information regarding the two groups' general concepts about reading.

The Significance of the Study

Although a few studies (Kozminsky and Graetz, 1986; Clarke, 1978; and Bullard, 1985) have focused on the way ESL readers process information, little research has been done on the reading focus of ESL learners. In general, Eskey (1986) noted that there had been little research on the problems of adult, academic second language readers.

The results of the present study might help Chinese students and probably other second language readers as well to have a better understanding of what processes they use when they read in English. The results may also have some implication for the development of the English as a foreign language (EFL) curriculum in countries which prepare students for studying in English-speaking countries such as the United States and Canada.

Limitations and Delimitations of the Study

The L2 subjects in this study were Chinese students, who came from the People's Republic of China and were studying at the University of Alberta. They were all majoring in science. All of them had received a university education before entering the University of Alberta and all were in graduate programs.

It is important to note that because of the high level of education of the students in the sample they can not be considered to be representative of EFL or ESL students in general. Hence, the results of the study are generalizable only to other Chinese graduate students at universities in North America.

In order to keep the time required of subjects realistic, only two sample passages, ten comprehension questions and two questions about concepts of reading were included.

The passages were selected from TOEFL practice material on popular science topics to ensure that all of the subjects in the study would be familiar with the topics presented. The questions were used as provided in the TOEFL practice material. The results can only be generalized to similar types of material.

Because this study involved 30 Chinese students and 30 Canadian students, it was impossible to get all the subjects from the same area of study. Hence, their background knowledge and academic experiences were slightly different.

In addition, the study was based on the assumption that focuses of reading can be tested through the comparison of groups on remembering words from passages read.

Definition of Terms

For the purpose of this study, the following definitions were used:

Advanced ESL reader--- Sufficient comprehension to read simple authentic printed material or edited textual material within a familiar context. Can follow essential points of written discussion at level of main ideas and some supporting ones with topics in a field of interest or where background exists. Some misunderstanding.

Chinese Students--- Chinese students are ones who came from the P.R.China to pursue their graduate studies in Canada and have been in Canada for or least two years.

Canadian-born students--- They are graduate students who

were born in Canada and whose first language is English.

Reading focus--- Refers to emphasis which the reader puts on while he or she is reading. Some readers concentrate on the meaning of text and others may focus more on words.

Overview of the Thesis

This chapter presents a statement of the problem and the purpose, significance and limitations of this study. Chapter Two will review the related literature. The research methodology will be described in Chapter Three. In Chapters Four and Five will appear the results, discussion, implications and recommendatons for further research.

Chapter 2

Review of Related Literature

Introduction

This review of the literature reveals that so far very little research has been done on the topic of different reading focuses between Canadian students whose mother tongue is English and Chinese students who learn English as a second language. However, some research has been done on the reading processes of ESL readers. This chapter presents a review of the literature on reading processes both of ESL and first language readers and of research on different reading focuses of native speakers and second language learners.

Nature of the Reading Process

In this study reading is not viewed as a passive activity, but rather as an active process. In the last fifteen years the accepted theory of ESL reading has changed dramatically, from a "bottom-up" model to "reading as an interactive process" model. In this section "bottom-up" ,

"top-down" and "interactive" models are discussed.

Bottom-up Model

In the early work both in second and first language reading, reading was assumed to be a rather passive or "bottom-up" process. Gough(1972), writing in the area of first language reading, was one of those who believed that reading is a " bottom-up" process. He hypothesized that graphemes are perceived as forming words, words as forming sentences, sentences as forming paragraphs and so on. He viewed reading primarily as a decoding process of reconstructing the author's intended meaning via recognizing the printed letters and words and building up meaning for a text from the smallest textual units at the "bottom" (letters and words) to larger and larger units at the "top" (phrases , clauses, intersentential linkage etc.).

This kind of reading process model in first language (English) strongly influenced ESL reading theories. As some experts on ESL reading indicated, traditionally in the study of second language (as much as, if not more so than, in the study of first language) comprehension, the emphasis has been almost exclusively on the langauge to be comprehended and not on the comprehension. This means that readers were viewed as a passive factor in the reading process and reached the

meaning of text in a passive way. Readers were separate from the writer. There was communication between reader and author through print. Quite a few experts on second language reading before 1970 considered second language reading as being essentially a decoding process, a process of deriving meaning from print (Plaister, 1968; Rivers, 1969; Yorio, 1971).

This reading model still has practical and theoretical influences in second language reading. Many countries such as China and Japan still pay much attention to grammar and vocabulary in foreign language teaching. In the meantime in recent research on second language reading (Carrell & Wallace, 1983), it has been found that second language readers may not effectively utilize "top-down" processes to facilitate comprehension; instead they may engage almost exclusively in text-based processing to the detriment of comprehension.

Top-down Model

In the late 1970s more and more experts on reading indicated that the decoding model was inadequate as a model of the reading process because it underestimated the contribution of the reader. It ignored the importance of a reader's background knowledge and past experience. These experts indicated that the reading process was not simply a process of

extracting information from the text.

About fifteen years ago, Goodman's model of reading began to play an important role in second language reading although Goodman himself didn't initially relate his theory to ESL readers. He described reading as a "psycholinguistic guessing game" (Goodman, 1971) in which the reader reconstructs, as best as he or she can, a message which has been encoded by a writer as a graphic display. In his model Goodman hypothesized that the reader need not use all of the textual cues. The better the reader is able to make correct predictions, the less confirming via the text is necessary. He stated:

> ... the reader does not use all the information available to him. Reading is a process in which the reader picks and chooses from the available information only enough to select and predict a language structure which is decodable. It is not in any sense a precise perceptual process (Goodman, 1973, p.164)

According to this point of view, the reader reconstructs meaning from written language by the graphophonic, syntactic and semantic systems of the language, but he or she merely uses cues from these levels of language to predict meaning. The model assumes that the reader is an active participant in

the reading process who makes and confirms predictions, primarily from his or her background knowledge of the various linguistic levels. The reader's past experience is very important to making predictions.

Initially, Goodman's psycholinguistic theory had an impact on first language reading; later it had an impact on second or foreign language reading. In the 1970s Eskey (1973), Coady (1979), and Clarke (1978) raised questions about the psycholinguistic model for ESL readers. Specifically they asked how and to what degree literate second language readers employ lower-level processing strategies, and how these skills interact with higher-level processing strategies. An important issue involved whether there were differences between first language readers and second language readers in English.

Top-down models have some limitations. They tend to emphasize such higher-level skills as the prediction of meaning by means of context clues or certain kinds of background knowledge at the expense of such lower-level skills as the rapid and accurate identification of lexical and grammatical forms. The model tends to deemphasize the perceptual and decoding dimensions of that process. It may be an accurate model of the skillful fluent reader, for whom perception and decoding have become automatic, but not of the less proficient, developing reader.

Interactive Model

Widdowson(1979) hypothesized that reading is a process in which the text activates a range of knowledge in the reader's mind that he or she uses, and which, in turn, may be refined and extended by the new information supplied by the text. Reading is the process of combining textual information with the knowledge a reader brings to a text.

In 1979 Coady elaborated on the basic psycholinguistic model for ESL and suggested a model in which the ESL reader's background knowledge interacts with conceptual abilities and process strategies to produce comprehension. It is different from the top-down model in that this interactive model does not presuppose the primacy of top-down processing skill with gradual replacing of word-by-word reading by educated guessing based on minimal visual cues, but rather a constant interaction between "bottom-up" and "top-down" processing.

In this model, interactive refers to the interaction between information obtained by means of bottom-up decoding and top-down analysis, both of which depend on certain kinds of prior knowledge and certain kinds of information-processing skills. Eskey (1988) hypothesizes that readers are both good decoders and good interpreters of texts, their decoding skills becoming more automatic but no less important as their decoding skill develops.

Fagan (1987) views the reading process as involving two important factors: external and internal resources. External resources consist of resources outside of the reader: dictionaries, encyclopedias, reference material, other children, the teacher, etc. Internal resources are in the reader's memory as a result of his / her experiencs. These internal resources consist of four areas of knowledge (world, language, task and strategies) and affective resources. Putting readers and texts together is not sufficient for reading to happen. It is necessary for the reader to connect in some way with the text and to relate text stimuli to internal resources.

Reading Focus

Differences between Good and Poor Readers

Different readers use different ways in reading, but all use their past experience and decoding knowledge to complete the task of reading. The difference between poor and good readers is that they are more reliant on different aspects of reading. Stanovich(1980) has observed that good readers are "more reliant on context for fluency and poor readers more reliant on context for accuracy"(p.51). Poor readers also use top-down strategies or past experience to help reading,

but only to facilitate the simple recognition of words. A good reader must achieve both bottom-up recognition skills and top-down interpretation strategies. The mix of skills and knowledge (bottom-up and top-down) naturally varies from reader to reader. Good reading--that is, fluent and accurate reading--can result only from a constant interaction between these processes.

Carrell and Eisterhold (1988) hypothesize that less proficient ESL readers are more word-bound, and that meaning tends to break down at the word level. Vocabulary acquisition tends to be emphasized and they are encouraged to do a lot of specific word-by-word processing almost exclusively in a bottom-up process model. Eskey (1988) indicates that good readers read for meaning; they do not read every sentence or every phase, let alone every word, or letter or punctuation mark. He believes that the better readers they are, the less they actually see of the print on the page. From this point of view, a good reader sees less print on the page than a poor reader in second language reading. So a poor reader will see more or pay more attention to individual words than a good reader does in second language reading.

Spiro (1978, 1979) suggests that less skilled ESL readers tend to overrely on processes in one direction, producing deleterious effects on comprehension. The vast majority of ESL readers possess appropriate schema or a good

background knowledge of the world, especially advanced ESL students who are in graduate programs like the subjects in this study, but often have difficulty competing with their classmates in English reading in the program. Eskey (1986) suggests that since reading is a special case of human language behaviour, there is a sense in which all readers are alike, just as all walkers and talkers are in relation to creatures which do not walk and talk. In the real world, however, he thinks there is a difference between first and second language readers. There is some research on this topic which shows that ESL readers are more word-bound than native-speakers in reading English. A review of this research is presented in the next section.

Research on Second Language Readers

In this section two of the studies reviewed below invloved EFL samples and one involved an ESL sample. ESL refers to learning English in a country where English is spoken as the mother tongue. EFL means learning English in a country where English is not the mother tongue.

Kozminsky and Graetz's study. Kozminsky and Graetz (1986) based their study on current views about the reading process as an interactive process in which "both information extracted from the text and from the expectations or

hypotheses that limit the scope of interpretation of this information act together to produce a representation of the text meaning" (p.17). They hypothesized that this characterizes the mature reader with sufficient language skills and advanced knowledge about the subject matter. They further hypothesized that the reader who has adequate language skills but lacks knowledge would rely primarily on text information to produce meaning. The reading process of high knowledge readers with insufficient language skills was hypothesized as being a top-down process, involving limited interaction of the reader's knowledge about the subject and available data fragments from the text.

The subjects of Kozminsky and Graetz's research were 40 students from two advanced EFL classes and four university teachers who volunteered to participate in a summaries task. Two sociology texts written in English were used. The first one was about 4305 words and consisted of 34 paragraphs. The second one was about 3345 words divided into 13 paragraphs. Both paragraphs had been translated into the subjects' language, Hebrew. The subjects were asked to indicate how well they understood an article written in Hebrew or English and to prepare a summary in their language of about 150-200 words.

Three categories of activities were tallied for each text: underlinings, markings and notes. Underlinings were distinct marks under words, phrases or sentences. Markings

were all distinct marks on the text that were not underlinings or verbal notes. Notes were defined as verbal information on the text. In analysing summaries, four categories were used: selection, abstraction, cohesion and addition. Three sets of data were produced: study activities, text summaries and relationship of study activities to the text summaries.

Two independent groups of 21 students who took an introductory psychology class were asked to evaluate the summaries by the subjects. To ensure that these students read the text correctly, they were pre-informed and received a cloze test consisting of 20 statements taken at random from the text. After they completed the task they were given 22 typed summaries of the text and were asked to put the summaries in rank order from the best to the worst.

Results on the study activities data indicated that subjects reading in L2 focused on more words compared with subjects reading in L1 who underlined larger verbal units. Kozminsky and Graetz thought this result might be related to vocabulary problems in L2. It is inconsistent with their stated hypothesis that high knowledge readers with insufficient language skills would use top-down study strategies with L2 texts.

The quality of English text summaries was poor; the Hebrew text summaries were judged to be better than the English summaries. Mean ranks were 9.0 (Hebrew) and 16.4

(English). On study activities, a comparision of L1 and L2 indicated that L2 readers reflected a word-focus orientation together with a top-down strategy component in the form of notes. On summary production L1 compared with L2 readers clearly engaged in a top-down, abstraction oriented strategy.

As for the relation of study activities to text summaries, subjects reading English texts utilized fewer of their text generated activities in the summaries than did the Hebrew text summarizers (26.5% vs 44.7%). In other words L2 readers used fewer of their text generated activities in the summaries compared with L1 readers.

The results obtained by Kozminsky and Graetz confirmed that there was a difference between L1 and L2 readers. L2 readers studied the text less efficiently than L1 readers. The pattern of L2 study activities was partially related to the word level in contrast to study activities in L1 which were related to paragraph structure. L2 summaries were judged to be poor compared to L1 and teachers' summaries.

The research of Kozminsky and Graetz was based on the assumption that the reading process could be measured through studying the study activities and text summaries made by subjects. This research was limited as Kozminsky and Graetz indicated that " some subjects did not do any study activities on the text and some did only a partial summary or none at all in the allotted time"(p.17), but the results were

similar to those of other research on the reading process of advanced ESL readers.

Clarke's Research. Clarke conducted two studies (1978) in order to determine if first, psycholinguistics could explain the reading behaviours of adult Spanish speakers reading in Spanish and in English, and second, if these readers transferred their skills from Spanish to English. In the first study, Clarke used cloze tests to measure the reading process; in the second he analysed oral reading miscues.

The subjects chosen by Clarke for the first study were 21 low level ESL students enroled in intensive courses at the English Language Institute, University of Michigan. They were all young adults, high school graduates and their mother tongue was Spanish. They were assumed to be proficient readers in their native language.

Cloze tests were constructed by deleting every seventh to tenth word from a prose passage. The English cloze passages were taken from ESL test books which were not currently being used in the intensive courses at the English Language Institute. For the Spanish tests two Latin American short stories were selected. The Spanish test material contained 1903 words and 90 blanks, and the English material contained 602 words and 57 blanks.

Subjects were required to fill each of the resulting

blanks with an appropriate word. The tests were scored by counting the number of times the subjects restored the original word to the context (exact word method) and by counting all responses which were syntactically and semantically acceptable. The degree of acceptability or "quality" of a cloze test response was used to allow for an evaluation of syntactic and semantic acceptability on a scale ranging from totally unacceptable, through acceptable only with parts of the sentence, to acceptable in the sentence and totally acceptable.

Reading ability was determined by the subjects' exact scores on the Spanish cloze tests. The best readers and the poorest readers were selected until two approximately equal pools of responses were identified for analysis, and this procedure produced a Good reader group of 8 subjects and a Poor Reader group of 6 subjects. The results indicated that the two groups represented different reading abilities. The Good Reader mean on Spanish texts was 60, with a range of 58-65 while the Poor Reader mean was 45, with a range of 33-50.

The results showed that good L1 readers were good L2 readers because the rank order of the good and poor reader groups was maintained in the second language. The interesting result was that the good readers produced responses which conformed to meaning constraints (41% compared to 25% for the poor readers). On the other hand, the poor readers indicated

a much greater sensitivity to syntactic constraints than to semantic constraints (50% compared to the good readers 35%).

In the second study Clarke used oral reading miscues to undertake an in-depth analysis of individual reading behaviours. Two subjects were chosen according to two criteria. First, subjects should speak both English and Spanish relatively clearly. The second criterion was to choose a good L1 reader and a poor L2 reader who were of comparable ESL proficiency. Each subject read a selection orally, in its entirety, and related as much as he or she could remember when he or she finished. The subjects were asked to retell the stories and were asked some questions about the passages. The reading, retelling and question-answer periods were all tape recorded.

The selections were 1) new to the reader, 2) moderately difficult, 3) of sufficient length to insure the availability of syntactic and semantic context, and 4) consisted of semantically complete units.

Miscues for analysis were selected by a procedure which eliminated all non-significant miscues from consideration; that is, only miscues which had a potential loss or change of meaning were included. The first fifty miscues thus identified for each reader were evaluated on 13 categories of the Goodman Taxonomy of oral reading miscues (Goodman and Burke, 1973). Comprehension of passages was evaluated by producing a

typescript of the retelling and then evaluating the typescript against an exhaustive outline of the passage.

MPHW (miscues per hundred words), a basic quantitative measure used in miscue analysis, was also computed by dividing the total number of words read into the total number of miscues, and multiplying by 100. Studies reported by Goodman and Burke (1973) have revealed a fairly consistent relationship between miscue quantity and reading proficiency; good readers tend to make fewer miscues than do poor readers.

The good reader in the study produced fewer miscues than the poor reader, both in Spanish (2.0 compared to 4.6) and in English (5.8 compared to 6.8). A comprehension score was used to measure the quality of miscues produced by a subject. The score is derived by adding the percent of semantically acceptable miscues to the percent of semantically unacceptable miscues which the reader has successfully corrected. The good reader produced a comprehension score of 82%, compared to the poor reader's 70% in Spanish; their scores were 52% and 44% respectively in English. The results showed that the most frequent type of miscue was the word-level miscue in which one word was substituted for another.

The findings for these Spanish-speaking adults reading in English in Clarke's studies underscored the importance of language skills for effective reading. On the basis of these results Clarke suggested that ESL reading teachers must

emphasize both psychological and linguistic factors in reading programs.

Bullard's Study. Bullard (1985) studied the focus of L1 and L2 readers using a different approach to that of either Kozminsky and Graetz or Clarke. The subjects in his research were teachers of English in France. They were divided into two groups: 1) native speakers of French who were teachers and proficient speakers of English; and 2) native speakers of English, who resided in France.

Two sets of 20 decontextualized words, one set in French and the other in English, were taken from radio recordings. These items were individual words which were then excised from the original recordings and recorded with a pause between each item lasting from ten to fifteen seconds.

The subjects chosen for the test listened to the recorded item either in groups or individually, the English items first. They listened to all items under the same acoustic conditions and were asked to write down the words they had heard.

The result was that English speakers only achieved 39.55% accuracy in their average scores, but French speakers achieved 48.35% accuracy in average scores. This result was almost the reverse of what we would normally expect because subjects who spoke the language as a second language were more successful than those who were native speakers. Bullard

thought the most probable explanation was that the subjects might well be more word-oriented in second language acquisition. Furthermore he thought second language readers who remained at the letter-by-letter stage might deal with unfamiliar words more successfully than their peers, but they would be less competent readers. In the first language, the volume of input was so great that the students were forced to adopt a global approach. In the second language, the word-based approach tended to dominate and was so effective that eventually word-by-word proficiency might exceed that of native speakers.

Bullard believes most ESL learners perceive language learning as the learning of words even though teachers may pay lip-service to the importance of discourse. His research has some limitations. First, it didn't test the relationship between reading comprehension and use of a word-oriented process or global process in reading. Second, the research was based on the assumption that reading focus could be tested by listening to and writing down individual words without context.

Summary

Top-down processing is the making of predictions about the text based on prior experience or background knowledge,

and then checking the text for confirmation or refutation of those predictions. Readers who use this reading process focus on their past experience or background knowledge to connect with the content of the text. Bottom-up processing is decoding individual linguistic units and building textual meaning from the smallest units to the largest, and then modifying preexisting background knowledge and current predictions on the basis of information encountered in the text. The reader who uses this model of the reading process focuses on individual words or pays more attention to individual vocabulary to comprehend the meaning through the print of the text. Interactive processing involves the use of both top-down and bottom-up processes to reconstruct meaning from print.

Different readers read in different ways since they have different education backgrounds, different language knowledge and different reading purposes and reading styles. Generally, however, it has been hypothesized that less proficient ESL readers focus more on bottom-up than top-down processing.

A few experts on ESL have focused their research on the reading focus of ESL readers. Kozminsky and Graetz (1986) and Clarke (1978) compared ESL or EFL readers on L1 and L2 materials and concluded that readers focused more on the word level when reading in their second language than when reading in their first language. Bullard (1985) compared ESL listeners

in their first language (French) and their second language (English) through having them listen to individual words out of context. He found that listeners were more word-oriented when listening to their second language than when listening to their first language. He indicated that because of this word-level proficiency, overall comprehension is worse in the second language.

Chapter 3

Research Design and Procedures

Introduction

The main purpose of this study was to examine differences between Chinese graduate students and Canadian-born graduate students in English reading. More specifically, the study examined differences in reading focuses between the two groups. In order to explore these questions four different research instruments were used:

1) reading comprehension tests;
2) word recall tests;
3) questions about conceptions of reading; and
4) interviews.

Two pilot studies were conducted before the main study. In this chapter, both the pilot studies and the main study will be described.

Pilot Studies

Sample and Procedure of the First Pilot Study

The sample for the first pilot study consisted of five L1 students and five L2 students who were studying at the University of Alberta. The five Chinese students were all graduate students studying in the Engineering and Math departments. Two of the Canadian students were undergraduates in education, and three of them were graduate students in the Computer and Math departments. The purposes of this pilot study were to determine:

a) suitability of the testing procedures;

b) time for testing procedure; and

c) difficulty level of the test.

The subjects were asked to read two reading comprehension passages. These two passages were taken from a TOEFL practice book. Two questions followed each passage to test the subjects' reading comprehension ability. Ten individual words or phrases from the two passages were mixed with twenty words or phrases which were synonyms or different forms of the text words. As soon as pilot subjects finished the reading comprehension test, they were presented with a sheet which contained thirty words or phrases to test their reading focus. The subjects could not reread the passages which they were asked to hand in before doing the focus testing. They were told there were ten words or phrases on the sheet which had appeared in the passages they read and they

were asked to indicate which words or phrases had appeared in the passages. No time limit was set for this task. The place for the testing was decided according to what the subjects thought was the most suitable for them. For example, some subjects took the tests in their offices, some in their residence and some in the researcher's office.

Results of the First Pilot Study

The results of this pilot study are presented in Table 3.1.

Table 3.1

Results of the First Pilot Study

Group	Reading Comp (4)		Words recall (10)	
	No. of items correct	%	No. of items correct	%
L1	3.4	85	5.2	52
L2	3	75	5.4	54

From the first pilot study, the following conclusions were drawn:

a) The findings on the word recall task were in the expected direction but there were too few items to produce definitive results. In addition, it was sometimes possible for subjects to guess the correct word because there were only two distractors for each item.

b) From the short interview, it was evident that the subjects preferred to take the tests without time limits and people around them. The Chinese students felt very nervous when told their rate of reading would be measured.

c) No one found that the content of the test was too difficult to understand.

d) Some subjects mentioned they were not familiar with the topics presented. For instance education students were not familiar with pollution topics.

e) The time for the whole procedure took 15 minutes including questions to gather demographic data.

The Second Pilot Study

In order to obtain further information about the subjects' concepts of reading, two open-ended questions were used in the second pilot study. The main purpose of this pilot study was to learn what L1 and L2 readers thought of reading and what they thought good reading involved. The subjects were five Chinese students in the Chemistry and Math

departments. They were asked to answer the questions in their office.

On the first question, two of the Chinese subjects indicated that reading word-by-word was easier in English; the others said reading for general meaning was easier. The second question produced a range of responses.

Changes Made from the Pilot Results

Because of the findings of the pilot studies, the following changes were made in the main study.

a) No time limit was set for the test and time taken to read passages was not formally measured to reduce nervousness.

b) In order to increase reliability, the number of comprehension questions for the two reading passages was increased to a total of 10. In addition, ten groups of words and phrases, each group having four choices, were developed for each passage.

c) The two questions about concepts of reading were added to the instruments.

d) The subjects were restricted to graduate students in science or engineering departments at the University of Alberta in order to ensure that they would be familiar with the test content.

Subjects in the Main Study

The subjects in this study were selected from two groups studying at the University of Alberta: Chinese students from the People's Republic of China and Canadian-born students whose mother tongue was English.

The Chinese subjects were selected first because there were fewer of them to choose from. After the Chinese subjects were tested, they were asked to introduce one of their Canadian classmates who was in the same level of graduate program and in the same department as the Chinese subject. Most of the classmates introduced shared the same office.

Chinese Subjects

The Chinese sample was comprised of 30 Chinese students, 20 males and 10 females. All of these students were graduate students who were majoring in science or engineering (see Table 3.2).

Table 3.2

Program and Gender of Chinese Subjects

	No. of subjects	Male	Female
Ph.D	21	18	3
M.Sc.	9	2	7

Chinese subjects chosen had been in their Masters or Ph.D programs at University of Alberta for at least two years (see Table 3.3).

Table 3.3

Year in Program of Chinese Subjects

Years in Program	No. of subjects	Percent%
2	3	10
3	9	30
4	11	36.7
5	6	20
6	1	3.3

The mean number of years the Chinese subjects had been in Canada was 3.77. The distribution of the Chinese subjects in different departments at the University of Alberta is shown in Table 3.4.

Table 3.4

Distribution of Chinese Subjects by Departments

Departments	No. of subjects	Male	Female
Computing Science	7	5	2
Mathemaics	5	3	2
Chemistry	6	4	2
Physics	4	3	1
Soil Science	4	3	1
Civil Engineering	4	2	2

All of the Chinese subjects received higher education in China and 16 of them obtained a Master's Degree before they came to Canada. All of them had received bachelor's degrees in China. The subjects had studied English for at least six years in China and most of them received special training in

English just before they came to Canada. Most Chinese subjects claimed that the quality of their English instruction improved once they went to university in China, especially in the special English training classes just before they came to Canada.

Another important characteristic of the Chinese subjects' English learning experience is the result of language teaching emphasis. All the subjects claimed that grammar and reading were very strongly emphasized. Their reading ability was stronger than other language skills, but they seldom read original newspapers in English. Most of the reading materials in English were adapted articles taken from original reading materials. Because of the limitation of qualified teachers and space, most of their English instruction involved lectures and very few had spent time listening and speaking in English classes.

All the subjects stated that they had received a special English training program before they came to Canada. They thought these programs were very helpful for them because in these training programs, they had a chance to improve their listening skills, since these programs emphasized passing the TOEFL which mainly tests listening, reading and knowledge of structures. Most of the subjects claimed that they were good

at reading in English, but almost half of the subjects mentioned that they still found it very difficult to compete with their Canadian classmates in reading.

Canadian Subjects

The Canadian sample consisted of 30 Canadian-born students. These Canadian students were all graduate students studying in the Faculties of Science and Engineering and they were chosen to match the Chinese subjects on gender, department and field of study. For example, if five Chinese subjects were chosen from the Department of Chemistry, five Canadian subjects from the same department were chosen to match the five Chinese subjects. In order to match the Chinese subjects on gender, 20 males and 10 females in the Canadian sample were chosen. The criteria for selecting the Canadian sample were as follows:

1) they must have been born in Canada;

2) English must be their mother tongue; and

3) their gender, departments and major must match the Chinese subject (see Table 3.5).

Table 3.5

Gender and Department of Canadian Subjects

Department	No. of subjects	Male	Female
Chemistry	6	4	2
Computing Science	7	5	2
Civil Engineering	4	2	2
Soil Science	4	3	1
Mathematics	5	3	2
Physics	4	3	1

Research Instruments

In the present study , four research instruments were employed: a brief interview, reading comprehension passages and questions, word recall tests, and questions about concepts of reading. In this section, these four instruments are described.

Interviews

A short interview was conducted with each Chinese subject before and after the reading comprehension and word

recall tests. The purpose of the interviews was to gather basic demographic data and information about their experiences learning and reading English. The following areas were included:

1) their education experience in both China and Canada; the year they were in their program;
2) when and where they learned English;
3) how they learned English;
4) what kind of test they took before they came to Canada;
5) how long they stayed in Canada and what year they were in their graduate program;
6) in what department they were studying at the University of Alberta;
7) what they thought of their reading ability in Canada.

Reading Passages and Questions

The reading materials used for the study were chosen from a TOEFL practice book written and printed in the United States. None of the Canadian students had read this sort of material because first, it was not necessary for them to take the TOEFL test to attend university and second, none of them were majoring in TESL. Similarly, Chinese students would not have read this particular book in Canada because they had passed the test before they came to Canada. The two passages

together contained 460 words together. They were both about popular science in order to ensure that they were familiar to both groups of subjects who were science and engineering graduate students. The first passage contained 220 words. It was about the influence of air pollution on air temperature in the world. The second one contained 240 words and was about the dangers of smoking. The topics of both passages were familiar to the subjects since they are very popular topics in Canada and other parts of the world.

The TOEFL practice material included five questions for each of the two passages selected. These questions were used to ensure that subjects viewed the reading task as one involving meaning and to obtain a measure of reading comprehension. All correct answers were based on the passages themselves, and it is unlikely that they could have been answered from basic knowledge alone. The format was multiple choice with four alternatives for each question. Some questions required readers to make inferences on the basis of text information.

Reading Focus Task

In this study it is assumed that reading focus can be measured through the memory of words from materials read. According to some experts on reading, good readers pay less

attention to the words in the text and instead they focus on the meaning without recalling specific words in the text. Each word or phrase was presented with three synonyms or words containing the same root but different forms. For instance, for a long time, for ages, for years and for many years were a group of synonyms. Have been survived, have survived, has survived and has been survived were a group of different forms of the same word. Synonyms were taken from the New Thesaurus (1988). The 20 groups of words and phrases used to test reading focuses are presented in Appendix A.

Questions about Concepts of Reading

Two questions were used to obtain more information about the subjects' concepts of reading in English. One question was related to the adult readers' ideas about reading in English as word-by-word or reading for meaning. The other focused on subjects' concept of good readers in English. The two questions were as follows:

1) Which would be easier to do in reading, read word-for-word or for the general meaning?

2) What makes someone a really good reader?

These questions were taken from research by Gambrell and Heathinton (1981) who compared proficient and less proficient adult readers. They used these questions to assess the

purpose of reading and awareness of reading strategies. In this study these two questions were used to gather further information on differences between L1 and L2 readers in focus of reading.

Data Collection

Before the tests and the interviews were administered, the nature of the study was explained and a permission form (see Appendix C) was signed by each subject.

Each subject was clearly informed as to how to do the tasks. For instance, each subject was asked to read the two passages only once in her or his normal way and informed that after reading each passage, there was a group of five multiple choice questions for her or him to answer. Once a subject had finished the reading comprehension questions on the first passage, the word recall sheet for the first passage was presented. Subjects were asked to pick out the word or phrase in each group which was exactly the same as the one which appeared in the passage which they had just read. They were not allowed to reread the passage.

Because two passages were used to test word recall, it was important to counterbalance the order in which the passages were administered to avoid having a practice effect on one of the passage. The first of the Chinese subjects was

given Passage One first to read and do reading comprehension questions and recall tasks and then was given the second passage. The second Chinese subject was given the second passage to read first with question and recall tasks, and then was given the first passage. This process was continued until all Chinese subjects finished both passages. The Canadian subjects were administered the passages and tasks in the same manner to control for order effects. After both passages were completed each subject was presented with a sheet containing the two questions about concepts of reading and asked to write their answers to the questions.

The location for the test chosen by both Chinese and Canadian subjects was their own offices. An appointment was made before the test. In their offices the subjects were asked to complete the test by themselves at their desks. It took the Canadian subjects fifteen to twenty minutes to complete the test and about twice as long for the Chinese subjects to finish the test.

Data Analysis

In order to ascertain similarities and differences between the two groups (L1 and L2 subjects), scores were obtained on three variables: reading comprehension tests, word recall tests and questions.

The ten reading comprehension questions were scored according to the correct answers provided in the TOEFL material. Each question was scored either right or wrong and the total number of questions answered correctly was determined for each subject.

On the word recall task, each of the 20 word groups was scored right or wrong since there was only one correct word or phrase in each group. Again total scores were determined for each subject on the word recall task. The total scores for reading comprehension and word recall tasks were analyzed statistically comparing L1 and L2 groups. The program used for this statistical analysis involved t-tests on the MTS computer system at the University of Alberta with the help of a consultant from the Centre for Research in Applied Measurement and Evaluation.

Information from the interview and questions was used to help understand and interpret the results from the statistical analysis and to obtain further information on the reading focus of the two groups. Categories into which responses to questions were placed are presented in Chapter 4.

Chapter 4

The Results of the Study and Discussion

Introduction

In this chapter the results of the study are presented in three sections. Section One shows the results from the reading comprehension task done by both the Chinese and Canadian subjects. Section Two presents the results from the word recall task and section three will show the results from the open-ended questions and the short interview.

Reading Comprehension

The results from the reading comprehension test are presented in this section. First, the number of questions correctly answered by Chinese and Canadian subjects on the reading comprehension task is shown in Table 4.1. Second, a comparison of the results of the two groups is presented to determine whether there was any significant difference between the two groups when reading the same passages. The purpose of this section is to determine similarities and

differences between the Chinese and Canadian groups in reading comprehension.

Results on the Reading Comprehension Task

Although reading focus was the major concern of this study, it was important to assess reading comprehension so that readers would view meaning as the purpose of the reading task and to determine whether there were reading comprehension differences as well as language differences between the two groups. The following table shows the results from both Chinese and Canadian subjects.

As can be seen from Table 4.1, no subject got 100% of the questions right, including the Canadian subjects.

Table 4.1

Performance on Reading Comprehension by Chinese and Canadian Groups

	Number of Questions Correct					
Groups	5	6	7	8	9	10
Chinese	1	2	11	11	5	0
Canadian		3	7	9	11	0

From Table 4.1 it is clear that there was not much difference between the two groups; the Chinese subjects' mean score on the comprehension questions was 7.6 and the Canadian subjects' mean was 7.9. There was no significant difference between the two groups as indicated in Table 4.2.

Table 4.2

Results of Statistical Analysis of Chinese and Canadian Groups in Reading Comprehension

Groups	Mean	S.D	t.Value	2-Tail Prob
Chinese	7.6	0.97		
Canadian	7.9	1.02	-1.43	0.158

Discussion

The results on the reading comprehension task were quite different from expectations based on most experts' research on second language reading and on common sense. Several possible expanations are presented in this section.

First, the Chinese subjects were different from ordinary ESL readers in that they were quite knowledgable on the topics

of the passages. They were all graduate students who were majoring in science. They may have been able to use their knowledge to compensate for their facility with the English language.

The results might also be related to the fact that readers were given as much time as they required to read the passages. In this study reading rate was not assessed because of concern that the measurement of rate would affect the normal reading process of the subjects. To ensure that normal reading would take place without pressure subjects were told to read the passages in their normal way. Reading rate was not measured, but in general, the Chinese subjects took double the time taken by the Canadian subjects to finish reading the two passages. Chinese subjects usually took four or five minutes to read one passage, but Canadian subjects only took about two minutes to finish it. This is important since the difference in reading rate may reflect differences between the two groups in their reading process.

Third, these Chinese subjects were advanced ESL students who had received special training in reading English before they came to Canada. From the interview it was found that all of them had received special training programs in reading English. Those programs usually focused on reading because speaking, writing and listening were not required in English proficiency tests prior to 1988. All subjects had taken

English tests such as TOEFL, GRE and so on. They had been in Master's and Ph.D Programs for at least two years in Canada, so they were required to have good reading ability. Most of them indicated in the interview that reading was the most important skill in their graduate program. They read a lot mainly in scientific English in university so their English had improved in Canada.

In summary, because of their strong background both in science and in reading in English, the Chinese subjects could answer the reading comprehension questions as well as the Canadian subjects in the study. However, the Chinese subjects took more time than the Canadian subjects to finish reading the passages.

Word Recall

Results on the Word Recall Task

In the last section possible reasons why there was no significant difference between the Chinese and Canadian groups in reading comprehension were discussed. One reason mentioned was that the Chinese subjects took more time in reading the same passage than the Canadian subjects did. Why was their reading rate slower than that of the Canadian subjects? Did they use a different way to read the same passages? The

results from the word recall test were used in an attempt to answer these questions. Table 4.3 shows the results on the word recall task by the Chinese subjects.

Table 4.3

Results on the Word Recall Task of the Chinese Subjects

	Number of Items Correct						
	1... 11	12	13	14	15	16	17...20
No.of Subjects	2	2	2	10	12	1	1

Table 4.3 shows that the majority of the Chinese subjects got 14 or 15 right out of 20. The mean was 14. This was quite different from the Canadian subjects' results which are shown in the following table.

Table 4.4

Results on the Word Recall Task of the Canadian Subjects

	Number of Items Correct									
	1...3	5	6	7	8	9	10	11	12	13
No.of Subjdects	1	1	4	1	7	5	5	5		1

Compared with the Chinese subjects, the Canadian subjects only attained a mean of 8.6. The results in Table 4.4 shows that the Chinese subjects did significantly better than the Canadian subjects when they were asked to recall the words and phrases in the study.

Table 4.5

Results of Statistical Analysis of Chinese and Canadian Subjects on the Word Recall Task

Groups	Mean	S.D	t.Value	2-Tail Prob
Chinese	14.2	1.34	12.00	0.00
Canadian	8.6	2.20		

Discussion

From these results the Chinese subjects remembered more single words and phrases in the paragraphs which they read, indicating that they paid more attention to words and phrases than the Canadian subjects did. The interesting thing was that although they paid more attention to the words and phrases than the Canadian subjects did, they did as well as the Canadian subjects in reading comprehension. This means that

both groups reached the purpose of reading--comprehension--but they used different ways to reach it. Some possible reasons that the Chinese subjects focused more on words are presented below.

First, since ESL readers are not as good as the first language readers in English vocabulary, they may have to pay more attention to words than first language readers do. This is consistent with the explanation given by Kozminsky and Graetz (1987) in their study when they stated that "L2 subjects focused more on words compared with L1 subjects, which might be related to L2 subjects' vocabulary problems"(p.14).

Fillmore's (1981) various levels of expectation also might explain the results on word recall in this study. Fillmore described three different levels of ESL reading as follows:

E-0	text-based processing only
E-1 and E-2	text-based processing and knowledge-based processing
E-3	knowledge-based processing only

In Fillmore's opinion E-0 processing involves decoding the individual words and their lexical meanings, and decoding the syntactic structures of each sentence and their grammatical-functional meanings as subjects, direct objects, etc. In Fillmore's level E-1 and level E-2 readers would

assume that they were dealing with a cohesive, coherent text, rather than separate sentences and might interpret the text in terms of their knowledge of human goals, institutions, and human nature. In level E-3 readers might do additional knowledge-based processing of the text and fill in details not motivated by the text itself or by general conventional knowledge. In this highest level Fillmore believes readers may inject their own personal experiences or assumptions about human behaviour into their reading. The Chinese subjects in the study seemed to be in level E-1 and E-2 described by Fillmore.

Recent studies of ESL reading (Carrell, 1983; Carrell and Wallace, 1983) have found that ESL readers may not effectively utilize knowledge-based processes and seem to engage almost exclusively in text-based processing to the detriment of comprehension. In the present study, text-based processing did not appear to negatively affect reading comprehension.

Clarke's (1978) research on native Spanish and ESL reading showed that second language proficiency may limit the transference of good L1 reading skills to reading in the second language. This study did not consider how Chinese students read in their first language so it is not possible to assess the plausibility of this expanation.

Finally, the Chinese subjects in this study were

different from many ESL readers in that they received formal reading training for many years. However, these training programs took place in China, where traditional teaching methods were dominant in ESL reading. As mentioned above traditional teaching focused on vocabulary and grammar in EFL in China. The students received this kind of training for many years, so they may have developed a habit of reading which focused on structure and words in passages. Spiro (1979) believes that ESL readers suffer from what has been called a "meaning is in the text" fallacy. The reason is that ESL and EFL students learn English in the classroom. They treat classroom reading as the purpose of reading (Carrell & Eisterhold, 1988). In classroom settings reading is often done for the teacher's purposes and not the students' and reading comprehension is usually tested by questions and answers.

Questions on Conception of Reading

Two questions were asked of all subjects to gather further information on the subjects' concepts of reading in English.

Question One

Responses to the first question, "which do you think

would be easier in reading, read word-for-word or for the general meaning?" were placed in two categories since this question gave the subjects two possible answers to choose from. The number of responses to the question in the two categories is shown on Table 4.6 for both groups.

Table 4.6

Response to the First Question about Reading Conception

Groups	general meaning	word by word
Chinese	26	4
Canadian	30	0

From Table 4.6 it is evident that all the Canadian subjects thought reading for the general meaning was easier than reading word-by-word. This agreed with the results from their word recall test, in which they remembered fewer words and phrases in the passages than did the Chinese subjects. The majority of Chinese subjects also responded to this question that reading for general meaning was easier than reading word-by-word. However, their reading focus was more on words and phrases than the Canadian subjects since there was a significant difference between two groups in the word recall test. Hence, although most Chinese subjects said that reading

for general meaning was easier, what they did in the word recall test did not agree with what they said in response to this question. There are two reasons which could explain this disagreement.

First, the Chinese subjects may have thought reading for the general meaning was the easier way to read, but they had to use a bottom-up process in reading because of various factors such as vocabulary problems, a reading habit caused by previous training programs, and their conception of reading. These factors were considered above in detail.

Second, as advanced ESL readers, the Chinese subjects may have been reluctant to admit their preference for word-by-word reading. This possibility was illustrated by one subject's remark when she said that she knew reading for general meaning was good in reading comprehension, but she found it easier to read word-by-word.

Question Two

Responses to the second question, "what makes someone a really good reader?" were placed into three categories:

1) reading word-by-word (bottom-up process),
2) reading the whole meaning (top-down process), and
3) reading both (interactive process).

The results from this question are shown in Table 4.7.

Table 4.7

Results on the Second Question about Reading Concept

Group	Top-down	Bottom-up	Interactive
Chinese	5	15	10
Canadian	27	0	3

The majority of the Canadian subjects thought they read for the general meaning. For example, one Canadian subject answered the question as follows:"I couldn't find words or phrases in the text, only meaning fixed in my mind". Half of the Chinese subjects thought it was a good reader who understood words and phrases or grammar. For instance, one Chinese subject mentioned that if he understood vocabulary in one article he could obtain the meaning of it. Some subjects from both groups thought both vocabulary and background knowledge were important in reading. One Chinese subject said that as soon as she found the topic of smoking she was sure what the article would be about because she had read so many articles like that one.

Because this was an open-ended question, some answers

were difficult to categorize. For instance, one of the Chinese subjects answered in this way: "A good book can make one become a good reader, so good books are very important for readers." It appeared that this subject understood the question in a different way than intended. A few days later I phoned him asking more about his answer. He told me that a good book was interesting and the reader could enjoy reading it. I further asked whether readers enjoy the meaning of a book or the words in a book. He answered that both meaning and words were important because meaning came from the words in the book. This answer was put into the "interactive" category.

From Table 4.7 it is evident no Canadian subjects considered a good command of vocabulary and grammar to be important in reading. It may be that the Canadian subjects didn't think it was an important issue since they had a very good grasp of both grammar and vocabulary. Fifty percent of the Chinese subjects thought vocabulary and grammar were very important in reading. This was inconsistent with the results of the first question, but agreed with the results on the word recall test. This is very interesting because although Chinese students thought a good reader had a good command of vocabulary and grammar, in their responses to the first question most of them indicated that reading for the general meaning was easier than reading word-by-word in English. Perhaps the Chinese students were more consciously aware of

grammar and vocabulary than were Canadian students because of their relatively recent involvement in EFL classes.

Even more interesting is the fact that although the Chinese subjects focused more on words and grammar, they did as well as the Canadian subjects in the comprehension task. This means as advanced ESL readers they didn't use a complete bottom-up model as some experts hypothesize. They appeared to reconstruct the meaning through an interactive model, although they did engage in more bottom-up processing than did Canadian subjects. Because they were knowledgable about popular science they could use this knowledge to compensate for their language deficiencies.

Chapter 5

Summary, Conclusions, Implications and Recommendations

This Chapter provides a summary of the study and the major conclusions drawn from the findings presented in Chapter 4. In addition, implications of the findings for theories and practice in ESL reading are discussed. Finally, some further research in this field is recommended.

Summary

The purpose of this study was to identify and analyze the similarities and differences between advanced L1 and L2 readers in reading focuses in English. The study was also designed to show whether different reading focuses affect reading comprehension. A reading comprehension test and a word recall task were used to gather information on reading comprehension and focus. Two passages involving popular science and 10 questions about them were used to test reading comprehension. Twenty words from the two passages, each presented with three synonyms or different forms, were used to determine the reading

focus of L1 and L2 students. A brief interview and two questions about concepts of reading were included in order to obtain further information. The reading comprehension test and the word recall task were administered to 30 advanced ESL students from P.R. China, who were in Master's and Ph.D programs, and 30 Canadian-born graduate students whose mother tongue was English. All subjects were in the Faculties of Science or Engineering. The interview and questions were used to gather information about the subjects' educational background and general concepts of reading in English.

The analysis of the data on the reading comprehension and word recall tasks included determining frequencies and means as well as the significance of differences between scores of Canadian-born and Chinese subjects. The data from the interview and questions were analyzed by placing responses into categories and determining the frequency of responses in each category.

Major Findings and Conclusions

The major findings of the study relate to similarities and differences between the Chinese subjects and Canadian-born subjects in reading focus and comprehension. Subjects completed two main tasks. One was a reading comprehension test; the other was a word recall task. The results of the reading

comprehension test showed that the Chinese subjects obtained the meaning of the text as well as the Canadian-born subjects, since there was no significant difference between the two groups in the number of reading comprehension questions correctly answered.

Although rate of reading was not formally measured in this study, the Chinese students took more time to read passages than did the Canadian students. This suggested that the two groups were processing information differently as they read, and further support for this hypothesis was found on the word recall task. The results on the word recall task showed that the Chinese subjects focused more on words and phrases than did Canadian-born students. Hence, it appeared that the two groups used different ways to obtain the meaning of the passages they read. The Chinese subjects used more bottom-up processes than the Canadian subjects did. This was possibly related at least partially to the nature of the English training programs Chinese students completed in China before they came Canada. A heavy emphasis was placed on English grammar and vocabulary in these training programs. It is important to note that different results may have been obtained if more difficult and easier passages had been used. It is possible that both groups may have engaged in more top-down processing on easier passages and more bottom-up processing on harder one.

Further information regarding concepts of reading was gathered by asking each subject two questions. When asked which was easier, reading word-by-word or for the general meaning, both Chinese and Canadian-born students indicated that reading for the general meaning was easier. However, when asked a more open-ended question about reading concepts, 50% of the Chinese subjects indicated that knowledge of vocabulary and grammar were important. One person said in response to the question that vocabulary and grammar were basic to understanding the meaning. The findings on the open-ended question were consistent with results on the word recall task. Chinese students focused more on words and perceived words as more important to understanding what they read than Canadian students did.

Implications

Some general implications can be drawn from the findings presented in this study. These implications will be discussed in relation to the following two aspects of ESL reading: theories and practice.

Theoretical Implication

Some theorists (e.g., Clarke, 1978) assume that reading

is basically the same in all languages and teachers of ESL reading have developed methods and materials to reflect research insights into L1 reading. While the results of this study show that advanced ESL readers could understand what they read as well as readers whose first language was English, there were differences between L1 and L2 readers in their reading focus and this was reflected in their rate of reading. The Chinese subjects in this study focused more on words and phrases than the Canadian subjects did.

Ulijn(1980) suggested in his review of L2 reading research that L2 reading is more conceptually than syntactically guided, emphasizing similarity rather than differences between L1 and L2 reading processes. Kozminsky and Graetz (1986)in their study hypothesized that L2 reading is knowledge-based rather than interactive and that L2 students' approach would reflect a top-down process. However, their results were inconsistent with this hypothesis as were the results of this study. While the Chinese subjects were not exclusively bottom-up in their approach to reading, they did use more bottom-up processing than the Canadian subjects did. From the results of the study it was concluded that advanced ESL readers with a good knowledge background may be more bottom-up processors in comparison with native speakers of English. This is consistent with conclusions on ESL reading reached by Clarke (1978) and on EFL reading by Bullard (1985).

Hence, in spite of the fact that the subjects in this study were advanced ESL readers in graduate programs, the overall results were similar to those in other studies with different types of ESL and EFL samples.

Practical Implications

Curriculum developers of ESL and other courses should be aware that Chinese graduate students are word-oriented in reading although they are able to understand what they read as well as native-speakers of English if they are given sufficient time. The fact that Chinese students used a more bottom-up reading process than the Canadian-born students reflected the influence which traditional teaching methods may still have in ESL and EFL reading. To some extent, the bottom-up reading process the Chinese students used in reading may have resulted from the way in which English was taught and learned in China.

What should be done? First, there need to be more qualified English teachers in China, since a small number of qualified English teachers is not enough to change the present situation. Second, curriculum designers should develop a more communicative curriculum for EFL students in China who are planning to attend graduate programs in North America. Many different kinds of reading materials (original English) should

be used to offer opportunities for the students to understand that reading is not only for class purposes, but mainly for communication. There also needs to be a balance of the current focus on vocabulary and grammar with more emphasis on using knowledge to make predictions during reading. Finally, university professors, if possible, should give Chinese graduate students more time to finish their reading assignments.

Recommendations for Further Research

Although reading focus is an important factor which influences the reading process, or at least the reading rate, little research has been done in the area. The present study examined similarities and differences between 30 Chinese and 30 Canadian-born graduate students on a reading comprehension and a word recall task, but this study was still very limited. In view of this, some recommendations for further research are presented below.

Only Chinese subjects were chosen in the ESL group to compare with Canadian-born students. This means only similarities and differences between these two groups were examined. Therefore, research with advanced ESL students from other countries is recommended, especially with students from Asian countries because their education background and teaching

methods are quite similar to P.R.China.

This study only examined performance on reading comprehension and word recall tasks in English. However, no information was gathered about the Chinese subjects' reading process in their mother tongue since no Chinese passages were included in the study. Hence, the influence or transfer of reading processes from L1 to L2 was not examined in this study. More research could be done on the reading focus of Chinese students in both their first language and second language to determine their reading focus in their first language and to determine whether and how their reading focus in L1 influences their second language reading. In addition, it would be interesting to study the reading process used by first language readers in a range of different languages because the nature of the language may influence processes used.

The passages used to assess reading comprehension were not directly taken from the text books or research articles the students were required to read in their university programs. Hence, differences between the two groups actually reading in their own academic fields were not examined. Therefore, it is recommended that research be undertaken to examine whether there is any difference between Chinese and Canadian-born subjects when reading actual material from their own fields in English.

In addition, the passages used in this study were at only

one reading level. It would be interesting to use subjects similar to those involved in this study but to have them read passages at three levels of difficulty from easy to hard to determine the impact of the reading level of texts on reading focus.

Finally, it is recommended that a measure of reading rate be included in future studies on the reading focus of ESL students. This would require that a way be found not to influence ESL readers' normal reading process, perhaps using the computer.

Concluding Statement

The results of this study showed the similarities and differences between advanced ESL students and Canadian-born students in reading comprehension and reading focus. However, there are many other aspects of this problem which require investigation. It is hoped that further research will provided additional insights.

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APPENDIX A

READING COMPREHENSION AND WORD RECALL TASKS

DIRECTIONS:

This study is to compare the difference between L1 students and L2 students in reading. Please read the following passages only once in your normal way and then answer some questions about them. Finally answer two questions on your general conception of reading.

Scientists claim that air pollution causes a decline in the world's average air temperature. In order to prove the theory, ecologists have turned to historical data in relation to especially huge volcanic eruptions. They suspect that volcanoes effect weather changes that are similar to air pollution.

One source of information is the effect of the eruption of Tambora, a volcano in Sumbawa, the Dutch East Indies, in April 1815. The largest recorded volcanic eruption, Tambora threw 150 million tons of fine ash into the stratosphere. The ash from a volcano spreads worldwide in a few days and remains in the air for years. Its effect is to turn incoming solar radiation into space and thus cool the earth. For example, records of weather in England show that between April and November 1815, the average temperature had fallen 4.5 F. During the next twenty-four months, England suffered one of the coldest periods of its history. Farmers' records from April 1815 to December 1818 indicate frost throughout the spring and summer and sharp decreases in crop and livestock markets. Since there was a time lag of several years between cause and effect, by the time the world agricultural commodity community had deteriorated, no one realized the cause.

Ecologists today warn that we face a twofold menace. The ever-present possibility of volcanic eruptions, such as that of Mt.St. Helens in Washington, added to man's pollution of

the atmosphere with oil, gas, coal, and other polluting substances, may bring us increasingly colder weather.

1. It is believed the earth gets colder when
   a. volcanoes erupt
   b. the air is polluted by modern man
   c. the rays of the sun are turned into space
   d. all of the above

2. The effects of Tambora's eruption were
   a. felt mainly in the Dutch East Indies
   b. of several days' duration worldwide
   c. evidence of pollution's cooling the earth
   d. immediately evidence to the world's scientists

3. The cause of cold weather in England from 1815 to 1818
   a. decreased crop and livestock production
   b. volcanic ash in the atmosphere
   c. pollution caused by the Industrial Revolution
   d. its proximity to the North Sea

4. No one realized the cause of the deterioration of the world agricultural commodity market because
   a. there was a long delay between cause and effect
   b. weather forecasts were inaccurate
   c. the weather is beyond our comprehension
   d. ecologists didn't exit until modern time

5. If, as some scientists predict, the world ends in ice, what might be the cause?

   a. modern man's polloution of the air

   b. volcanic eruptions

   c. obliteration of solar radiation

   d. all of the above

I. Please try your best to choose exactly those words and phrases which appeared in the passage read by you.

PASSAGE ONE:

1. Possibility, contingency, eventuality, potentiality
2. for a long time, for ages
   for years, for many years
3. suspects, suspected, suspecting, suspect
4. large, huge, enormous, great
5. indicate, mean, specify, signify
6. bring, brought, brings, bringing
7. no one, nobody, none, none of them
8. fine, delicate, refined, subtle
9. wholly, totally, throughout, beginning to the end
10. similar, resembling, look like, much the same

Statistics regarding cigarette smoking are anything but encouraging. The Federal Trade Commission recently announced that in 1980 Americans purchased 628.2 billion cigarettes, an appallingly greater number than ever before. The average smoker consumed 11,633 cigarettes, of which 44.8 percent were low-tar cigarettes containing less than 15 milligrams of tar. In 1968 the average tar content was 22 milligrams.

Despite the fact that every cigarette pack has a printed warning from the Surgeon General, those who smoke are smoking more heavily. Many people have forsworn smoking in fear of lung cancer. The American Cancer Society reports that death rates from lung cancer have escalated, whereas those for other major cancers have levelled off or declined. Last year 111,000 Americans died of lung cancer, while it is estimated that 117,000 will succumb this year. Lung cancer heads the list in killing 35 percent of males who die from cancer. Lung cancer accounts for 17 percent of women's cancer deaths. An estimated 440,000 deaths from cancer will occur this year, 9,000 more than the previous year. Lung cancer accounts for two thirds of diseases. Although many cancer patients have survived the disease, the prognosis for lung cancer patients is most disheartening. Ninety-one percent of all diagnosed cases of lung cancer do not survive.

1. You may infer that low-tar cigarettes
   a. reduce the dangers of smoking
   b. appeal to a majority of smoking
   c. cause lung cancer
   d. have the Surgeon General's approval

2. Statistics show average smokers smoker
   a. less than they did in the past
   b. more than they did in the past
   c. the same as they did in the past
   d. none of the above

3. It is predicted that the number of deaths from lung cancer this year will be
   a. reduced from the number last year
   b. the same as the number last year
   c. 6,000 more than last year
   d. 111,000

4. The percentage of women's lung cancer deaths is
   a. equal to that of men's lung cancer deaths
   b. rising annually
   c. about half the percentage of men's cancer
   d. an indication that women are not susceptible to lung cancer

5. You may infer from the passage that lung cancer

   a. can be treated effectively

   b. is always related to smoking

   c. will cause cigarettes to be taken off the market

   d. currently has no infallible cure

PASSAGE TWO:

1. have been survived, have survived,
   has survived, has been surviving
2. escalated, escalates, escalate, escalating
3. discontented, dissatisfied, disheartening , discouraging
4. containing, contain, contained, contains
5. accounts for, accounted for, accounting for, account for
6. major, primary, main, chief
7. take place, happen, occur, come
8. purchased, bought, compensate, paid
9. printed, prints, printing, print
10. many people, lots of people,
    numerous people, a lot of people

APPENDIX B

QUESTIONS REGARDING READING CONCEPTS

Please write brief answers to each of the following questions:

1. Which do you think would be easier in reading, read word-for-word or for the general meaning?

2. What makes someone a really good reader?

APPENDIX C

To: X. Wei Liang

I, _____, hereby give my permission to be included in your study on the difference between L1 and L2 in reading. I also understand that my name will not be used in any paper or presentation on the study, and that I can withdraw from the study at any time.

_____

Signature

_____

Date